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A SUMMARY OF THE ILLINOIS SKID-ACCIDENT REDUCTION PROGRAM :

DECEMBER 1986- DECEMBER 1987

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
BUREAU OF MATERIALS AND PHYSICAL RESEARCH

A SUMMARY OF THE ILLINOIS SKID-ACCIDENT REDUCTION PROGRAM

January 1987 - December 1987

By

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I. PURPOSE

The purpose of this report is to summarize developments in the Illinois Skid-Accident Reduction Program since December 1986. This is the fifth in a series of summary reports dating back to 1980 and describes work completed from January 1987 to December 1987.

II. BACKGROUND

The Illinois Department of Transportation (IDOT) in 1964 initiated an extensive and systematic program of skid-accident reduction. Most of the work since then has been in cooperation with the Federal Highway Administration (FHWA) and in compliance with Federal mandates. The following chronology of FHWA directives summarizes the mandates that shaped the Illinois program.

1967 - HIGHWAY SAFETY PROGRAM STANDARD 12 (HSPS No. 12)

Titled "Highway Design, Construction, and Maintenance" Issued June 27, 1967, HSPS No. 12's general objectives were to assure that existing streets and highways are maintained in a condition that promotes safety and that capital improvements, either to modernize existing roads or to provide new facilities, meet approved safety standards. HSPS No. 12 further required special provisions for high skid-resistant qualities in pavement design and construction and for correction of locations with low skid resistance by providing improved surface characteristics.

1973 - FHWA INSTRUCTIONAL MEMORANDUM 21-2-73 SUBJECT "Skid-Accident Reduction"

Issued July 19, 1973, IM 21-2-73 redirected Federal emphasis from establishing skid-accident reduction programs to evaluating existing programs.

Each state's program was to include:

a) An evaluation of current pavement design, construction, and maintenance to ensure that the skid-resistance properties are suitable for the needs of the traffic.

b) A systematic procedure for the identification and correction of hazardous skid-prone locations.

1975 - FEDERAL-AID HIGHWAY PROGRAM MANUAL, (FHPM 6-2-4-7) Titled "Skid Measurement Guidelines for the Skid-Accident Reduction Program"

Issued December 10, 1975, FHPM 6-2-4-7 suggested that each state's Skid-Accident Reduction Program should be composed of at least the following three basic activities:

1. The evaluation of pavement design, construction, and maintenance to ensure that only pavements with good skid-resistance characteristics are used in construction and resurfacing.
2. The detection of locations with a high incidence of wet-pavement accidents by utilizing the State accident record system and local accident record system where applicable, and the development of priorities for correction of the locations.

3. The analysis of skid-resistance for all roads with a speed limit of 40 mph or greater, so that skid-resistance can be given consideration in development of priorities for resurfacing and maintenance programs.

FHPM 6-2-4-7 also provided guidelines for conducting friction measurements and furnished information on the activities that were expected to be part of each State's skid-accident reduction program.

1980 - FHWA TECHNICAL ADVISORY (T 5040.17)

Titled "Skid-Accident Reduction Program"

Issued December 23, 1980, T5040.17 was a comprehensive guide for state and local highway agencies in conducting skid-accident reduction programs. No other guidelines have been issued since T5040.17. The purpose of the skid-accident reduction program was to minimize wet weather skidding accidents through: identifying and correcting sections of roadway with a high or potentially high incidence of skid-accidents; ensuring that the new surfaces have adequate durable skid-resistance properties; and utilizing resources available for accident reduction in a cost-effective manner.

Each State's Skid-Accident Reduction Program was required to consist of at least the following three basic activities:

a. The evaluation of pavement design, construction, and maintenance practices through its pavement management program to ensure that only pavements with good skid-resistance characteristics are used.

b. The detection and correction of locations with a high incidence of wet weather accidents utilizing (1) the State and local accident record systems, and (2) countermeasures for locations with high wet weather incidences, to ensure that existing highways are maintained in a safe condition.

c. The analysis of skid-resistance characteristics of selected roadway sections to:

(1) ensure that the pavements being constructed are providing adequate skid-resistance,

(2) develop an overview of the skid-resistance properties of highway systems,

(3) provide up-to-date information for the pavement management process, and

(4) provide data for use in developing safety improvement projects and the implementation of cost-effective treatments at appropriate locations.

Between 1980 and 1984 IDOT developed two traffic safety programs in accordance with the guidelines established in FHWA's technical advisory T5040.17. Departmental policy TRA-15, "Safety Improvement Construction Program" (formerly Highway Safety Construction Program) was issued March 29, 1983. One year later, March 15, 1984, Departmental Policy TRA-16, "Skid-Accident Reduction Program" was issued.

Policy TRA-15, Safety Improvement Construction Program, states that the Department shall have a program for identifying high accident locations and conducting a safety program addressing those and other

potentially hazardous locations on a priority basis. The policy describes the procedures for utilizing high accident location information to develop, implement, and evaluate an annual safety program of cost-effective improvements. The policy eliminated the Highway Safety Construction Committee and replaced it with a District multi-discipline team as the group who recommends projects for improvement within each District.

Policy TRA-16, Skid-Accident Reduction Program, states that IDOT shall have a program designed to minimize wet-pavement skidding accidents. This policy has three basic activities as required by FHWA T5040.17. Significant elements of each activity are as follows:

1. Incorporating adequate, durable skid-resistant roadway surfaces during construction and rehabilitation of highway pavement segments: Both portland cement concrete and bituminous concrete surfaces are addressed. Friction characteristics of PCC pavement are developed in freshly placed surfaces by following specifications for Type A or Type B final finish in the Standard Specifications. For bituminous concrete, the friction characteristics of new surfaces are controlled by matching the allowed coarse aggregate with projected traffic levels.
2. Identifying, analyzing, and improving two categories of wet-pavement accident locations:
   The first category of wet-pavement accident locations are sites that have an over represented rate of wet-pavement accidents. These sites are called wet-pavement high-accident locations. The Safety Improvement Construction Program (TRA-15) provides for immediate response to these most critical wet-weather locations.

However, while the program offers rapid response, funding limitations restrict its effectiveness.

The second category of wet-pavement accident locations are sites within rehabilitation/resurfacing projects that have been identified as potential wet-pavement accident locations. These sites are called cluster sites. Cluster sites are identified using the "Procedures for Identifying, Analyzing, and Improving Wet-Pavement Accident Locations Within Rehabilitation/Resurfacing Projects". The procedures are part of the "Illinois Safety Improvement Process" manual. Appropriate corrective treatments are selected for rehabilitation.

3. Evaluating and Reporting on Effectiveness of The Program:

Five activities are detailed. The Bureau of Materials and Physical Research is responsible for (1) all friction testing and maintaining a friction number data base, (2) evaluation of current design practices relative to friction characteristics, and (3) evaluation of experimental projects concerning friction characteristics. The Division of Traffic Safety, in cooperation with the Bureau of Traffic and the Districts, will (4) evaluate the effectiveness of selected countermeasures in reducing wet-pavement accidents. Finally, the Bureau of Materials and Physical Research, in cooperation with the Bureau of Traffic and the Division of Traffic Safety, will (5) prepare an annual report summarizing the activities of the Illinois Skid-Accident Reduction Program.

This report was prepared in response to item three of the skid-accident reduction program. Work on the program was conducted in cooperation with the Federal Highway Administration. Work completed by

the Bureau of Materials and Physical Research was conducted as part of the IDOT's research project IHR-407, titled "Pavement Friction Inventory."

Included in this report will be:

- a summary of the Variable Speed Tester program
- use of new materials
- experimental use of available materials in bituminous concrete
- publication of Friction Number (FN) test results on newly constructed projects and follow-up results of previously tested new construction projects
- an evaluation of accidents on the first contracts that included TRA 16 counter measures
- a list of contracts, let in 1987, that contain TRA-16 counter measures

III. VARIABLE SPEED TESTER

In the late 1970's IDOT began using a laboratory testing system to rank aggregate sources according to their friction characteristics. With this system, aggregate samples are rapidly polished on a Small-Wheel Circular Track (ASTM E 660). Friction characteristics of the polished aggregates are then measured using a Variable Speed Tester (VST) which is a slightly modified version of the device described in ASTM E 707-79.

Since construction in 1979, IDOT has upgraded the VST system on numerous occasions.

Recent VST enhancements made by IDOT include:

- special tires were purchased consisting of material conforming to that used in friction tester tires as shown in AASHTO M 261-83 or M 286-83.

- A strain gage/load cell system was added and wheel loading procedures were modified to eliminate differences in test weight from test to test.

These changes resulted in improved system accuracy and a decrease in Variable Speed Tester Number (VSN) of approximately eight on the majority of samples retested to date. Because of the overall reduction in VSN, it was decided to retest all aggregates. The retest program began in 1986. Any reference to VSN in the remainder of this report will be to data collected from 1986 to December, 1987.

TEST SPECIMENS

A coarse aggregate (CA) test specimen is made by placing minus 1/2- to plus 3/8-inch sized CA, flat side down, in the bottom of a 6-inch diameter mold, prepainted with retarder. The mold is then filled with cement/sand mortar. After curing, excess mortar is brushed away from the coarse aggregate particles. As a result VST tests are made on only the coarse aggregate particles. Eight test specimens are made for a single aggregate source/ledge evaluation. In the case of 50/50 blends of different aggregates, 12 specimens are made.

CIRCULAR TRACK

Coarse aggregate specimens to be evaluated for wear and polish are first placed in the small-wheel circular track and subjected to the scrubbing action of four (4) smooth pneumatic (go cart) tires. To provide scrubbing action, one pair of opposite wheels is toed-out 2^{o} while the other pair of wheels is toed-in 4^{o}. This wheel configuration produces accelerated polishing action without the aid of water or grinding compounds. The circular track is fitted with 12 specimen holders.

VST TESTING

The VSN described on page 8 for a coarse aggregate is an average value for the eight specimens (12 for blends). The specimens are tested two at a time in four separate eight-hour runs (six runs for 50/50 blends) on the circular track. VSN is measured on each specimen prior to polish and after eight hours.

VSN

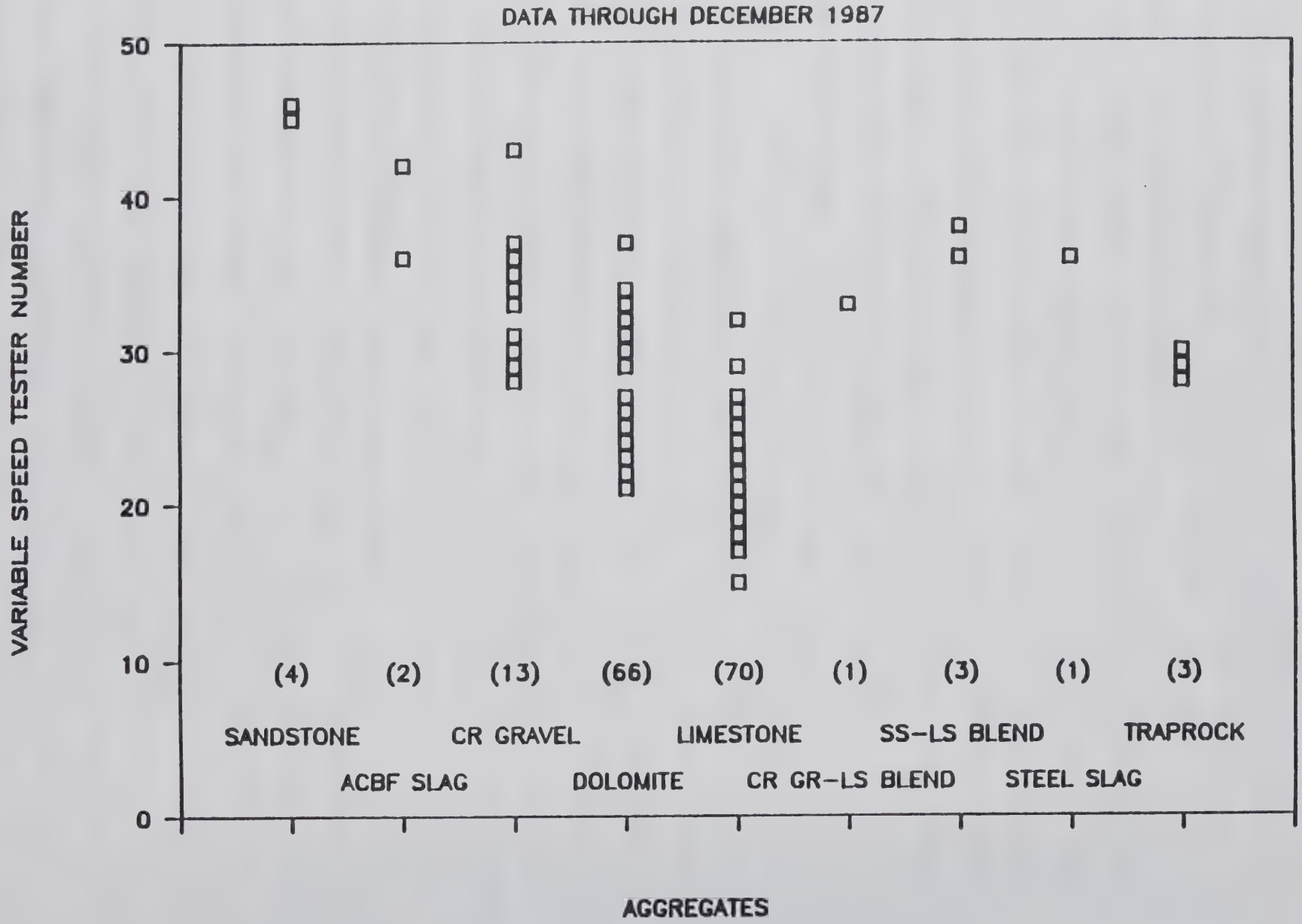
The VSN data available through December 1987 are shown in Appendix 1. Included are the VST Numbers assigned to each sample, sample location, percent of magnesium oxide, initial and eight hour VSN. Some VST sample numbers are listed more than once. This is because each ledge of each quarry is tested.

The eight hour VSN results are grouped by petrological classification and presented graphically in Figure 1. Abbreviations used in Figure 1 are as follows: ACBF = air-cooled blast furnace, Cr = crushed, CRGR = crushed gravel, ls = limestone, and SS = sandstone. Limestone and dolomite are differentiated by percent of magnesium oxide; limestone is defined as having less than 11 percent, while dolomite has 11 percent or more. The number in parenthesis is the number of samples tested in each aggregate classification.

It can be seen quite clearly, in Figure 1, that some limestone sources provide a higher friction potential than some dolomites, crushed gravels and trap rock. Limestone is the most abundant aggregate in approximately 70 percent of the State of Illinois.

Under present policy, coarse aggregates (CA) are separated by petrological classification. Friction characteristics of bituminous concrete surfaces are controlled by matching allowed coarse aggregates with projected traffic levels. Limestone is only allowed as the sole

FIGURE 1. 8 HOUR VSN OF ILLINOIS AGGREGATES.



CA in bituminous concrete surface course where the projected traffic level is less than 2000 ADT. Limestone can be blended with air-cooled blast furnace (ACBF) slag, steel slag or sandstone and used where projected ADT will not exceed 25,000.

By basing the present policy upon petrological classification of CA, high friction aggregates are excluded unnecessarily in some situations. The VST program was developed in an effort to address this inequity. The VST can be used to rank aggregates according to friction characteristics which will ensure optimum use of local aggregates.

IV. NEW MATERIALS

In the 70 years since IDOT's first pavement was placed, nearly every type of local aggregate and some synthetic aggregates have been used in paving mixtures. These days, the introduction of a new aggregate is a rare event. It has been 10 years since the last new aggregate (Steel Slag) was allowed for experimental use in paving mixtures.

Recently, a sandstone aggregate source was found in southern Illinois. This aggregate meets the current IDOT Specifications for use in bituminous mixtures. There is only one source currently producing sandstone coarse aggregate for use in IDOT mixtures. VSN results on the crushed sandstone are the highest obtained of any aggregate tested to date. The high friction potential of sandstone is attributed to the continual attrition of individual sand grains out of the surface of each sandstone particle. Because of this quality it was believed that sandstone can be used as a substitute for ACBF or steel slag in IDOT's high friction bituminous mixtures.

The IDOT's Highway District Nine first placed a Class I bituminous concrete surface course mixture with 100 percent crushed sandstone CA on U.S. Route 45 in Johnson County near the town of New Burnside. In the first set of friction tests the treaded tire friction number (FNt) averaged 63 and the smooth tire friction number (FNs) averaged 46; both of which are very high.

Encouraged by the initial FN at New Burnside, sandstone CA was used on three other locations. Two sites contained 100 percent sandstone CA and the other contained a 50/50 blend of sandstone and limestone CA. Initial FN results at these sites were also encouraging.

In January 1986, IDOT joined FHWA in a cooperative study of the frictional characteristics of Class I bituminous concrete surfaces with crushed sandstone CA. Included in the study were ten bituminousconcrete surfacings containing crushed sandstone coarse aggregate. Six surfaces have 100 percent crushed sandstone and four have 50/50 blends of crushed sandstone/limestone.

Results of friction measurements made on the surfacings with 100 percent sandstone are shown in Table 1 while 50/50 blends are shown in Table 2. Friction numbers (FN) for a few selected ACBF slag sections with similar ADT are included for comparison. FNt denotes treaded tire friction numbers and FNs denotes smooth tire friction numbers. The FN values are average values for the contract. The results show that:

1. The initial FNt (43) on sandstone contract 40191 are as good as those of ACBF slag contract 30601 (40). Both have ADT's of slightly more than 20,000 vehicles per day (Table 1).
2. Over a ten year period, contract 30601's FNt has averaged 41 with a standard deviation of five (Table 1, 100% ACBF slag). We expect no less on contract 40191 (Table 1, 100% sandstone). Data from our FN data base and that of other researchers shown that, typically, friction numbers stabilize within two years then exhibit cyclic variations. Changes in FN are also related to changes in traffic density and composition.
3. Smooth tire friction numbers on all the 100 percent sandstone projects are higher than those on the ACBF slag projects (Table 1).
4. FNt and FNs results for the 50/50 blends of sandstone/limestone are as good as those for 50/50 blends of ACBF slag/limestone (Table 2).

Table 1. Contracts with 100% Sandstone and 100% Slag

AIR COOLED BLAST FURNACE SLAG

100 % ACBF SLAG SECTIONS

CONTRACT	DATE TESTED	ADT	AGE YEARS	PNc	PNs
20?0?	JUNE 85	20?5	5.8	44	31
RURAL	OCT 86		6.2	40	30
2 LANE					
			AVERAGE	44	27
			STD DEV	2.5	6.0
08853	OCT 83	8500	3.2	46	..
RURAL	DEC 84		4.4	54	..
2 LANE	SEPT 85		2.2	46	27
	JUNE 86		2.2	47	40
			AVERAGE	43	33
			STD DEV	2.3	4.5
08489	JUNE 83	8500	3.5	44	
URBAN	MAY 84		4.5	44	
4 LANE	JULY 85		2.7	47	17
	APR 86		3.5	47	27
	AUG 86		3.3	47	33
			AVERAGE	46	32
			STD DEV	1.5	4.7
08817	SEPT 85	10000	4.3	47	26
URBAN	MAY 86		2.5	42	29
3 LANE					
			AVERAGE	45	27
			STD DEV	2.0	1.9
03801	JULY 79	20400	4.3	40	
URBAN	SEPT 79		3.0	34	
4 LANE	AUG 80		3.3	33	
	SEPT 81		5.0	42	
	AUG 82		5.3	46	
	AUG 84		3.0	35	
	APR 85		3.6	49	23
	APR 86		9.6	44	22
			AVERAGE	41	25
			STD DEV	4.7	3.5

SANDSTONE DATA

100% SANDSTONE

CONTRACT	DATE TESTED	ADT	AGE YEARS	PNc	PNs
08374	JUNE 86	1200	1.3	61	47
RURAL	APR 87		1.7	57	32
2 LANE	AUG 87		2.0	61	46
			AVERAGE	60	41
			STD DEV	2.3	7.5
08432	APR 86	2?00	1.6	49	45
RURAL	SEPT 86		1.1	60	17
2 LANE	OCT 86		1.2	58	41
	APR 87		1.6	57	45
	AUG 87		1.4	56	41
			AVERAGE	60	40
			STD DEV	2.2	2.7
08106	OCT 86	11000	2.2	63	42
URBAN	APR 87		1.7	60	49
2 LANE					
			AVERAGE	62	45
			STD DEV	2.5	4.5
40413	APR 87	12450	1.1	57	41
RURAL					
2 LANE					
40191	APR 87	20600	2.7	40	34
URBAN					
4 LANE					
40996	AUG 87	3000	2.2	57	28
RURAL					
2 LANE					

Table 2. Contracts with 50/50 Blends of Limestone with Either Sandstone or ACBF Slag

50/50 ACBF SLAG/LIMESTONE

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
35722	SEPT 84	1800	0.9	52	36
RURAL	JULY 85		1.7	51	31
2 LANE	APR 86		2.4	46	35
	SEPT 86		2.8	48	38
	APR 87		3.4	45	35
			AVERAGE	48	35
			STD DEV	2.3	2.3

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
34891	JULY 83	2100	0.6	41	
RURAL	OCT 84		1.8	46	
2 LANE	OCT 85		2.8	40	23
	MAY 86		3.3	42	33
	AUG 86		3.7	46	31
	MAR 87		4.2	46	36
			AVERAGE	44	32
			STD DEV	2.6	2.6

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
35169	MAY 84	3000	0.9	46	34
RURAL	MAY 85		1.9	43	27
2 LANE	MAY 85		2.9	45	29
	AUG 86		3.1	48	31
	MAR 87		3.7	45	33
			AVERAGE	47	31
			STD DEV	1.6	2.6

50/50 SANDSTONE/LIMESTONE

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
35432	APR 86	2700	0.6	47	31
RURAL	SEPT 86		1.0	45	42
2 LANE	OCT 86		1.2	51	43
	APR 87		1.6	44	41
	AUG 87		1.8	47	33
			AVERAGE	47	43
			STD DEV	2.4	4.1

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
35432	APR 86	4200	0.6	40	35
RURAL	SEPT 86		1.0	45	35
2 LANE	OCT 86		1.2	47	32
	APR 87		1.6	42	34
	AUG 87		1.8	47	29
			AVERAGE	44	33
			STD DEV	2.8	2.8

CONTRACT	DATE TESTED	ADT	AGE YEARS	FNt	FNs
40780	OCT 86	9200	0.2	41	23
URBAN	JUNE 87		0.8	41	27
2 LANE					
1 OF 2			AVERAGE	41	25
			STD DEV	0.0	2.0
40780	OCT 86	3150	0.2	40	23
RURAL	JUNE 87		0.8	36	19
2 LANE					
2 OF 2			AVERAGE	38	21
			STD DEV	2.0	2.0

As indicated previously, the VSN for sandstone was the highest recorded (see Figure 1 in the previous section). The 50/50 blends of sandstone/limestone produced VSN slightly higher than steel slag or air cooled blast furnace slag.

A tabulation of estimated average cost for Class I surface mixtures placed in 1986 in District 9 is shown in Table 3. The total cost per ton includes all variable and fixed costs including operating costs, freight, profit, overhead, and bond. The cost does not include hauling cost to the bituminous plant.

Table 3 shows that Class I Mixture E for primary routes with 100 percent sandstone coarse aggregate will be approximately $3/ton to $6/ton cheaper than ACBF slag blends. The savings are greater for Mixture E for interstate routes with 100 percent sandstone being approximately $4/ton to $7/ton less.

On the basis of FN, VSN and cost data, IDOT proposed to use sandstone coarse aggregate as a substitute for ACBF or steel slag in all Class I bituminous concrete surface mixtures. The FHWA concurred and on July 20, 1987, approved the use of sandstone as a substitute for either slag. The Department will continue to follow the friction performance of surfaces with sandstone coarse aggregates. Performance data will be presented in future annual summaries.

V. EXPERIMENTAL FEATURES

The purpose of this section of the report is to update experimental work in progress and to introduce new experimental projects being undertaken. Topics included in this section generally have an impact

Table 3. Estimated Average Cost of Class I Surface Mixtures

Mixture	Coarse Aggregates	Gradation	Total $/Ton
	Primary Mixtures 50/50 Blends		
E	Novaculite ACBF Slag	CA-13 CA-16	42.68
E	Dolomite ACBF Slag	CA-13 CA-16	45.54
D	Novaculite Limestone	CA-13 CA-16	34.32
D	Sandstone Limestone	CA-13 CA-16	34.85
	Primary Mixtures 100% Single CA		
E	Sandstone	CA-13	39.75
D	Sandstone	CA-13	40.09
D	Dolomite	CA-13	35.45
	Interstate Mixtures 50/50 Blends		
E	Novaculite ACBF Slag	CA-13 CA-16	55.52
E	Dolomite ACBF Slag	CA-13 CA-16	52.03
D	Novaculite Limestone	CA-13 CA-16	45.67
D	Sandstone Limestone	CA-13 CA-16	42.76
	Interstate Mixtures 100% Single CA		
E	Sandstone	CA-13	47.98
D	Sandstone	CA-13	47.58
D	Dolomite	CA-13	43.59

on some state-wide policy or procedures relative to the Skid-Accident Reduction Program. Discussions in previous summaries have included:

- use of ACBF or steel slag in Class I Mixture E
- ACBF slag/limestone blends
- sulfur-extended asphalt
- sand-asphalt mixtures
- the new Interstate Mixture with FA 20
- Class I Mixture D where ADT exceeds 60,000.
- sprinkle treatments
- Portland cement concrete
- crushed gravel/limestone blends for Class I Mixture D

Because of the interest generated, progress on experimental use of crushed gravel/limestone blends will be updated. (Note: the Bureau of Materials and Physical Research will appreciate any suggestions or comments regarding topics of interest.)

Aggregate Blends

Previous work has shown that bituminous surface mixtures meeting the friction requirements of Class I Mixture D could be produced by blending coarse aggregates meeting Class I Mixture C requirements with those meeting Class I Mixture E requirements. In other words, Class I Mixture D could be produced using a 50/50 blend of slag (either one) and limestone coarse aggregates. Friction measurements showed that FNt for the blend was lower than that for either slag, higher than that for limestone, and usually was midway between the two.

When VSN data became available it was learned the aggregate blends usually result in a VSN slightly higher than the VSN averaged from the individual aggregates.

Crushed gravel/limestone

Laboratory VST testing showed that 50/50 blends of certain crushed gravel and limestone produced VSN comparable to acceptable dolomites. This suggested that 50/50 blends of specific crushed gravel/limestone may be acceptable alternate coarse aggregate blends for Class I bituminous surface course Mixture D. Discussions began in 1983 between IDOT and FHWA concerning the development of an experimental features program to evaluate the friction characteristics of bituminous surface course with 50/50 blends of crushed gravel and limestone.

Six contracts are under observation as part of the evaluation. A 50/50 blend was placed on four contracts (three rural and one urban) while the remaining two contracts (one rural and one urban) have 100 percent crushed gravel coarse aggregate in the surface course. Contract information is as follows:

Contract	ADT	Location
Rural 50/50 Sites		
38717	5000	On U.S. 51 1.5 mi. north of Wenona to 2 mi. north of Lostant
36999	5000	On U.S. 51 from Rutland to 5 mi. south of Minonk
40669	2800	On ILL. 1/U.S. 150 from 1 mi. north of Paris north 11 mi. to US 36
Rural 100% Gravel Site		
36868	5000	On U.S. 51 from 2 mi. south of Wenona to 1.5 mi. north of Wenona (ends where 38717 begins)
Urban 50/50 Site		
36986	13300	On Dirksen Parkway from Ridge Avenue to Elm Street in Springfield
Urban 100% Gravel Site		
39248	11550	On Spresser Street in Taylorville

Table 4. Friction Data for 50/50 Blends of Limestone with Crushed Gravel, ACBF Slag or Novaculite, and 100% Crushed Gravel

RURAL CONTRACTS

50/50 CRUSHED GRAVEL/LIMESTONE

CONT NO	ADT	AGE YEARS	FNt	FNs
38717	5000	0.1	34	26
PES. SITE		0.3	37	28
RURAL		0.8	45	32
2 LANE		1.0	44	31
		1.7	43	32
		2.0	47	33
	AVERAGE		42	30
	STD DEV		4.5	2.4
40869	2800	0.4	46	37
PES. SITE		0.7	45	40
RURAL				
2 LANE				
36999	5000	0.1	53	45
RURAL		0.6	50	31
2 LANE		0.8	36	21
		1.0	40	25
		1.5	42	30
		2.0	42	27
		2.4	43	32
		2.8	42	26
	AVERAGE		44	30
	STD DEV		5.0	6.5

50/50 ACBF SLAG/LIMESTONE

CONT NO	ADT	AGE YEARS	FNt	FNs
35830	8800	1	38	
RURAL		1.7	43	
2 LANE		3.1	39	19
		3.6	35	17
		3.9	37	19
		4.5	39	21
	AVERAGE		37	19
	STD DEV		3.1	2.3
35169	8000	0.9	46	34
RURAL		1.3	43	27
2 LANE		2.3	45	33
		3.1	48	31
		3.7	45	33
	AVERAGE		47	31
	STD DEV		1.6	2.5

50/50 NOVACULITE/LIMESTONE

CONT NO	ADT	AGE YEARS	FNt	FNs
35891	4700	.1	33	
RURAL		2.4	37	20
2 LANE		2.8	35	17
		3.2	35	17
		3.8	38	19
	AVERAGE		34	18
	STD DEV		2.8	1.2

100 % CRUSHED GRAVEL

CONT NO	ADT	AGE YEARS	FNt	FNs
36868	8000	1.2	41	25
RURAL		1.7	47	28
2 LANE		2.6	45	32
		2.8	44	29
	AVERAGE		45	28
	STD DEV		2.7	2.5

URBAN CONTRACTS

50/50 CRUSHED GRAVEL/LIMESTONE

CONT NO	ADT	AGE YEARS	FNt	FNs
36995	13300	0.1	38	25
URBAN		0.8	33	13
2 LANE		1.6	31	16
		1.8	31	16
		2.5	34	22
		2.8	32	19
		3.0	31	19
	AVERAGE		33	19

100 % CRUSHED GRAVEL

CONT NO	ADT	AGE YEARS	FNt	FNs
39248	11500	0.7	28	
URBAN		1.5	34	
4 LANES		3.6	32	22
		4.4	37	32
		4.7	38	33
		4.9	32	27
	AVERAGE		34	28
	STD DEV		3.3	4.4

Histories of friction measurements made on the experimental contracts along with results from other contracts containing limestone blended with ACBF slag or novaculite are shown in Table 4. Results from the experimental contracts can also be compared with those shown in Table 2 (limestone blended with ACBF slag or sandstone).

Evaluation of data included in Tables 2 and 4 shows the following:

- After a short period of time (less than 2 years) friction on a new pavement surface decreases to a constant level around which seasonal, daily or weekly variations can be observed.
- No significant difference can be seen in FNt or FNs on the 50/50 blends and the 100% crushed gravel contract.
- FN for the 50/50 blends of crushed gravel/limestone compare favorably with those for blends of limestone with sandstone, novaculite, or either slag.

On the basis of the FN and VSN results, on November 13, 1987, approval was requested from FHWA to allow the use of 50/50 blends of crushed gravel/limestone with VSN 27 or greater, in IDOT's Class I bituminous concrete surface course Mixture D. The rationale for selecting the VSN 27 cutoff was that the minimum friction potential of the blends would exceed that of virtually every limestone. Work continues on this study.

VI. STATEWIDE NEW CONSTRUCTION AND FOLLOW-UP DATA

As indicated previously, part of the "Skid-Accident Reduction Program" (TRA-16) requires the Department to evaluate the friction characteristics of newly constructed pavements and to maintain a friction number data base. The FHWA agreed to allow the Department to select a sample of new projects for testing because the Department does not have enough friction testers to evaluate all new construction.

Projects are selected from those that the Districts have submitted using "Friction Test Request" forms (No. PR 407). The form is supposed to be submitted for every paving project. A percentage sample is selected from each District. Sample size depends on the number of requests received. Target volume is approximately 50 percent of the requests received. The Bureau of Materials and Physical Research encourages District involvement in this program.

New construction data represents the first FN data collected. For any of the following reasons, a contract may be as much as 3 years old when the first measurements are made.

- Some requests are not submitted until the contract is finalized which could be several years after the surface is subjected to traffic. FN requests should be submitted when the surface is opened to traffic.
- Equipment malfunctions necessitate schedule changes. New construction sites have the lowest priority when compared to evaluation high accident and research related sites. Tests deleted from one test season are added to the next season.
- New surfaces should be subjected to 100,000 axle applications to wear away the curing compound used on PCC surfaces or the bitumen that coats the coarse aggregate on the surface of the Class I mixtures. Surfaces with low volume ADT and low percent trucks can take up to a year to acquire the necessary axles.

Follow-up tests are those made after the new construction test sequence. Experimental feature projects and other special interest contracts are tested three times per year to show seasonal fluctuations

at those sites. Some contracts in the follow-up group have more than one site of interest i.e., some contracts will snow multiple tests for one contract on a single day.

The 1986 results of friction tests made on projects considered new construction and those considered reruns are shown in Appendix 2. The data are sorted by District and mixname i.e., the computer printout shows DISTRICT = 91 MIXNAME = Class I D Mix which translates to District 1 Class I bituminous concrete surface Mixture D. Other data shown includes:

- Contract number
- Rural/urban location
- Average daily traffic
- Axle passes, in millions
- Date of FN test
- Treaded tire average, FNt
- Smooth tire average, FNs
- Coarse aggregate producer/supplier (two shown if blended)

The data shown are gathered from several sources. The Bureau of Materials and Physical Research regrets any inconsistencies in the data and will appreciate corrections.

While reviewing the data shown in Appendix 2, the reader should remember the following:

- There can be seasonal fluctuations in FN. Generally, summer readings are the lowest. No reliable temperature correction is available to correct readings for seasonal variation.
- Urban FN are usually lower than rural FN, all other things being equal.

- There are no guidelines for acceptable levels of FN on new construction. However, in the last summary (Dec. 1986) it was shown that almost 70 percent of all wet-weather high-accident sites have treaded tire FNt less than 30 and smooth tire FNs less than 15. (Although not shown, the bulk of wet-weather high-accident sites are in urban locations; mostly intersections.)

VII. TRA-16 COUNTERMEASURES

The November 1985 annual summary of the Skid-Accident Reduction program contains a list of the original contracts containing TRA-16 countermeasures. Although the projects are nearing two years of service, only one year accident data are available for less than one-half the sites. As a result, the evaluation of countermeasure effectiveness will be delayed.

A listing of contracts let during 1987 that contain TRA-16 countermeasures is shown in Appendix 3.

VIII. FUTURE WORK

Bituminous Concrete

FN performance evaluations will continue on:

- 50/50 blends of crushed gravel/limestone
- Sandstone
- The modified seal coat used as a remedial action to slow or stop the loss of fines from a bituminous surface
- Class I, Mixture E
- Interstate mixtures
- Recycled Asphalt Pavement (RAP) mixtures

Portland Cement Concrete

FN performance of Concrete Pavement Restoration (CPR) projects will be evaluated.

FN Data Base

Work will continue on expansion of the FN data base.

Laboratory Coarse Aggregate Evaluation

This work will continue as in the past.

Evaluation of TRA-16 Countermeasures

Data should be available to evaluate the effectiveness of some of the countermeasures.

APPENDIX I

VSN DATA

VARIABLE SPEED TESTER DATA THROUGH DECEMBER 31, 1987

VST NO	LOCATION	DATE TESTED	% MGO	VSN (HR) 0	8
7-1B	1-150' FACE	10-14-87	18.15	51	32
7-3A	LEVEL A, 0-40', S.FACE	12-14-87	19.3	52	32
7-3D	LEVEL D&E, S. OF PUMP HOLE	12-11-87	19.6	50	30
6-4A	LEDGE #1, 20'	06-23-86	2.4	42	18
5-5A	1700' S.W. OF CRUSHER	01-30-87	0.36	41	19
7-5A	UPPER LEDGE	06-15-87	0.43	39	17
7-5B	LOWER LEDGE	07-01-87	0.95	43	19
6-6A	57-229'	10-24-86	19.15	49	33
6-6B	97-229' HIGH WALL, N	02-10-87	19.2	48	30
7-6B	0-195' S. HIGH WALL	07-01-87	17.25	51	27
7-6C	229-264', LOC. BL-43	07-15-87	18	47	24
6-8A	LOWER 55'	10-09-86	0.28	40	18
7-10A	TOP ROCK, 10' LEDGE	12-23-87	0.62	43	23
7-11B	LEDGE #8 @ 21'	06-04-87	0.44	47	20
7-11D	LEDGE #4 @ 30'	06-15-87	0.9	41	18
5-13A	LEDGE A, QUAD. F-10	06-25-86	17.35	51	27
5-13B	LEDGE F2	06-04-87	14.9	46	26
5-13C	LEDGE C	02-25-87	5.35	42	21
5-13D	LEDGE D, QUAD. D-10	07-28-86	16.6	53	26
7-13E	LEDGE D, D-5	10-29-87	9.15	43	23
7-14G	0-60', N. FACE	10-20-87	18.6	47	28
7-16G	83'-118' BELOW ROSICLARE	09-09-87	0.59	41	19
7-16H	150-192' BELOW ROSICLARE	09-24-87	5.78	45	22
6-17B	LEDGES #7 & #8 @ 70'	01-26-87	3.65	42	21
7-17B	LEDGES #7 & #8 @ 70'	09-24-87	2.98	41	20
7-17G	LEDGES #1 & #2 @ 34'	07-06-87	1.94	39	18
5-18B	N. FACE, GRID CJ-20	07-31-86	1.04	46	18
7-19A	UPPER LEDGE	07-01-87	4.75	48	22
6-19B	BOTTOM LEDGE	08-26-86	0.73	49	21
7-19B	LOWER LEDGE	08-10-87	0.42	49	21
5-20B	5-43' ABOVE SHALE	06-17-87	2.8	45	23
7-20B	5-43' ABOVE SHALE S.W.	05-18-87	2.33	47	25
7-20C	0-55' BELOW SHALE	09-03-87	3.33	42	22
5-21F	7TH LEVEL, 276-300'	05-01-87	17.35	45	25
6-21H	8TH LEVEL, 301-334'	01-30-87	18.15	49	33
6-21I	54-81', LOC. D-2	03-27-87	20.1	46	25
7-21J	81-162',N QU. LOC. E-3	03-17-87	17.3	47	27
7-21J	334-369',LOC K-13,L13	10-16-87	16.8	50	29
5-22A	0-30'	04-10-87	17.8	54	34
6-24A	(%CARB. 37.7)	06-30-86	CR GR	52	35
7-26A	UPPER LEDGE	06-24-87	1.46	44	19
6-26B	LOWER LEDGE	09-19-86	1.24	48	23
7-76B	LOWER LEDGE, 3200'N.W.	06-04-87	1.15	44	20
5-29A	LOWER 34', S. QUARRY	03-31-87	0.66	49	26
5-30A	20-60'	04-27-87	18.9	53	31
6-31B	LEDGE #1 @ 110'	10-16-86	4.45	39	21
7-31B	LEDGE #1 @ 110'	07-23-87	4.77	43	21
5-32A	LEDGE #1	03-04-87	0.21	40	17
7-32A	LEDGE #1	07-10-87	0.27	41	18
5-32B	LEDGE #2	08-12-87	0.41	39	18
7-32B	ROOMS J(-3) K(-1)	07-30-87	0.36	41	18
7-33C	60-100', S OF PUMP HOLE	09-28-87	19.95	53	32

7-34D	0-15', GRID E-11	11-03-87	16.68	55	37
7-35B	0-42', GRID N-11	10-16-87	19.15	52	33
7-36A	0-65', GRID K3	09-16-87	19.28	46	24
5-38A	0-50'	08-11-86	20.05	50	27
5-39A	0-60' OF FACE	07-17-86	18	51	29
6-40A	FROM CA-7 PILE	06-23-86	2.95	41	19
7-42A	LEDGE #1	09-16-87	3.5	48	23
7-44A	LEDGE #1A	07-10-87	3.01	46	20
6-44C	LEDGES #5-#7 @30'	10-06-86	2.7	40	20
7-44C	LEDGE #5-#7	07-08-87	3.56	41	19
5-46B	LEDGE #3 @19'	03-17-87	3.37	46	23
5-46F	LEDGE #2 @17'	04-10-87	1.82	43	20
5-49B	0-50' OF FACE	04-28-87	18.25	53	31
5-51A	STOCK #1	02-10-87	17.85	48	31
7-51B	LEDGE #1	06-04-87	18.5	53	31
5-53A	STOCK #1	08-11-86	TRRK	45	29
6-53A	LEDGE #1 @40'	11-17-86	TRRK	42	30
7-53B	LEDGE #1	05-13-87	TRRK	44	28
6-54D	118-144'	11-17-86	18.6	49	29
5-54E	PROD. 144-180'	08-11-86	20.85	51	29
5-55A	0-50' OF FACE	04-28-87	18.5	53	31
6-58A	BENCH #1	01-26-87	0.2	41	19
5-59A	BENCH #1 @22'	04-07-87	0.87	36	15
7-60B	LEVEL B-Z @20'	10-29-87	1.78	49	27
5-61A	BENCH #1 @ 106'	06-17-87	3.71	44	19
7-62A	LEVEL #1 @ 55'	12-11-87	1.75	49	32
7-63A	LEVELS #1,#2,#3A @ 55'	12-11-87	3.18	49	27
6-64B	LEDGE A, 0-40', S. FACE	09-19-86	18.9	49	27
5-65A	0-20'	08-13-86	2.16	49	21
5-66B	LEDGE #2 @30'	05-11-87	4.68	44	21
7-66B	LEDGE #2 @30'	06-15-87	4.1	44	22
5-66C	LEDGE #3 @24'	09-02-86	1.2	40	18
7-66C	LEDGE #3 @26'	08-27-87	3.17	41	20
-66D	LEDGE #4 @ 12'	08-31-87	0.95	52	29
5-69B	50-75' FACE	08-12-87	19.35	52	30
5-70B	101-153' BELOW AUX VASES	06-26-87	1.7	45	20
6-70C	0-20' BELOW AUX VASES	03-13-87	1.75	44	22
5-71E	190-234', MIDWEST PIT NE	08-20-86	6.75	47	27
5-71F	232-272' LEDGE, HART PIT	05-13-87	2.3	45	24
6-71G	255-299', MIDWEST PIT NE	10-09-86	3.35	47	26
7-71H	82-127' BELOW AUX VASES	08-03-87	2.89	45	23
7-71I	254-312',MIDWEST PIT N END	09-18-87	2.41	47	24
7-72G	20-66' BELOW ROSICLARE SS	08-14-87	2.5	43	21
5-73F	161-196' N.W. CORNER	06-04-87	2.33	45	21
7-73G	196-216' BELOW TOP HRDBRG.	06-15-87	1.58	45	20
5-74C	4TH LEVEL @70'	08-13-86	1.29	53	22
5-75I	STOCKPILE	07-07-86	6.7	46	24
7-76B	25-75'	10-14-87	18	50	30
7-78A	125-150'	10-02-87	18.15	51	32
7-78B	181'-214'	12-11-87	15.5	53	37
7-79A	0-45'	12-23-87	20.15	51	32
5-80A	0-35'	04-17-87	18.95	54	32
5-81B	4-40'	06-26-87	18.7	51	28
5-82A	LEVEL 5 THRU 8 @34'	08-20-86	2.83	43	15
6-82A	LEVEL 5 THRU 8 @34'	01-26-87	0.28	43	21
5-83A	0-30'	08-20-86	19.45	48	25

7-84C	27-66'	10-02-87	16.2	51	34
7-85A	18-65'	10-20-87	16.9	55	37
5-87C	LEDGE #5, UPPER 19'	03-31-87	4.33	45	24
5-87F	LEDGE #5 @50'	08-20-86	7.3	52	26
7-88C	0-50', N QUARRY	09-28-87	18.5	52	32
7-89B	30'-60'	11-03-87	18.5	54	37
7-91A	0-110'	10-29-87	17.9	50	30
5-94A	24' LEDGE, ROSICLARE SS	07-07-86	SS	57	46
5-94B	24' LEDGE, ROSICLARE SS	07-11-86	SS	56	46
5-94SP	50/50 MIX	07-14-86	SS/LS	54	38
7-94B	24' ROSICLARE	05-19-87	SS	57	45
7-94B	24' LEDGE, ROSICLARE SS	08-19-87	SS	60	46
7-94SP	50/50 MIX	05-27-87	SS/LS	54	36
7-94SP	50/50 MIX	07-30-87	SS/LS	53	36
5-99A	(%CARB. 33.9)	07-28-86	CR GR	52	28
6-99A	(%CARB. 77.3)	10-09-86	CR GR	48	31
7-100B	LEVEL #2 @ 53'	10-27-87	3.53	47	26
5-103A	AIR COOLED BLAST FURN.SLAG	05-06-87	ACBF	51	36
7-103A	AIR COOLED BLAST FURN.SLAG	08-27-87	ACBF	58	42
5-105A	STEEL SLAG	02-25-87	STSL	51	36
5-112A	STOCKPILE	08-26-86	0.94	48	20
6-113A	LOWER LEDGE	09-19-86	0.91	46	20
7-113A	LOWER LEDGE	09-11-87	1.04	41	18
7-113B	UP.LEDGE, 1500' NW CRUSHER	08-03-87	0.44	43	18
5-114A	(% CARB. 0.1)	03-19-87	CR GR	47	34
5-115A	65' FACE	03-19-87	0.9	51	27
5-117A	UNDERGROUND MINE 200-225'	04-14-87	18.9	45	26
6-118A	(% CARB. 83.1)	09-05-86	CR GR	49	28
5-119A	(% CARB. 81.0)	07-28-86	CR GR	52	28
6-119A	(% CARB. 84.7)	10-28-86	CR GR	48	33
5-120A	(% CARB. 30.2)	08-01-86	CR GR	53	36
6-120A	STOCK (% CARB. 33.3)	01-30-87	CR GR	50	37
5-121A	N. FACE, 0-20'	09-02-86	19.5	55	30
5-122A	(% CARB. 93.8)	03-27-87	CR GR	50	29
5-123A	(% CARB. 75.6)	03-04-87	CR GR	48	29
5-124A	(% CARB. 80.8)	08-01-86	CR GR	51	29
5-125A	(% CARB. 90.4)	04-22-87	CR GR	50	29
5-126A	QUARTZITE	02-23-87	QZ	49	39
5-127A	0-30'	09-02-86	20.45	48	25
5-127A	0-30' RECHECK	02-19-87	20.45	50	31
5-128A	3RD LEVEL, 25'FACE,151-176'	09-02-86	19.55	45	21
6-128B	4TH LEVEL, 169-190'	03-02-87	20.1	49	27
6-128C	5TH LEVEL, 189-214'	02-17-87	19.05	49	30
7-128C	5TH LEVEL, 189-214'	08-03-87	17.6	49	25
7-128C	5TH LEVEL, LOC. P 189-211'	12-16-87	18.8	52	33
5-129A	20', N.E. FACE	07-21-86	0.75	48	22
6-130A	54-93'	07-18-86	0.9	45	19
7-130B	73-93'LEDGE	08-31-87	0.69	39	17
6-131A	LEDGE E, 125-165'	10-24-86	19.95	45	27
6-132A	COPPER SLAG	10-20-86	CS	48	39
6-133A	0-22', W. FACE	04-03-87	0.73	41	17
7-134A	CRUSHED MINE TAILING	07-15-87	CR MT	53	37

APPENDIX 2

NEW CONSTRUCTION

AND

FOLLOW-UP FRICTION TESTS

DISTRICT=91 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
38415	U	34100	15.79	11AUG87	1.9	27.	18	51972-04	
40016	U	24000	14.43	27OCT87	2.1	30	23		
40118	U	24000	14.46	27OCT87	2.1	33	23	50312-02	
40241	U	24200	5.31	27OCT87	0.9	34	26	50312-78	
40362	U	105400	14.70	27OCT87	1.0	50	32	52103-10	
40464	U	15400	4.76	13AUG87	1.1	27.	19	51972-02	

DISTRICT=92 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40354	R	2500	1.15	08SEP87	1.2	47	30	51032-73	
40463	R	6200	2.75	09SEP87	0.9	50	42	51032-73	
40526	R	1700	0.24	09SEP87	0.4	49	34	51410-97	
42109	R	800	0.24	16JUL87	0.7	48	31	51032-73	

DISTRICT=93 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
42030	R	900	1.95	14JUL87	0.6	54	52	52102-01	

DISTRICT=93 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
38699	R	550	0.44	03JUN87	2.0	53	38	51972-02	
40763	R	1750	0.05	14JUL87	0.8	57	57	50912-02	
40923	R	3950	1.15	14JUL87	0.7	55	48	50912-02	
42030	R	900	0.24	14JUL87	0.6	55	54	50912-02	
42161	R	2120	0.54	03JUN87	0.6	51	32	50892-03	

ILLINOIS DEPARTMENT OF TRANSPORTATION
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DISTRICT=94 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
38101	R	8400	0.26	16JUL87	0.1	43	18	50732-12	
40364	R	900	0.27	16JUL87	0.2	46	32	50732-12	
42079	R	8400	0.65	16JUL87	0.2	49	35	50732-12	
42156	R	2100	0.61	16JUL87	0.7	49	37	51550-07	

DISTRICT=95 MIXNAME=

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40921	R	800	0.14	27MAY87	0.5	45	37	51832-01	

DISTRICT=95 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36946	R	7300	3.79	10JUL87	1.0	61	49		

DISTRICT=95 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40086	R	950	0.13	18AUG87	0.3	49	40	51832-01	3247-01

DISTRICT=95 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40187	U	4400	0.80	29JUN87	0.7	38	25	50912-02	
40187	U	5000	0.91	29JUN87	0.7	40	26	50912-02	
40781	R	1500	0.74	18AUG87	1.0	50	38	50912-02	
42220	R	4400	0.26	18AUG87	0.2	43	36	50912-02	

DISTRICT=95 MIXNAME=CLASS I F MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36924	U	23200	13.82	27MAY87	1.6	35	26	50313-35	52100-32
40187	U	5000	0.91	29JUN87	0.7	35	31	50912-02	51193-31
40978	R	19000	4.10	01JUL87	0.7	55	45	50912-02	52103-17

DISTRICT=96 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
38442	R	1500	1.35	05AUG87	2.2	17.	11		
38901	R	2200	1.95	04AUG87	2.2	44	36	52302-04	
39904	R	1000		04AUG87	2.1	50	39	50672-03	

DISTRICT=96 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36021	R	650	0.53	03AUG87	2.0	51	38		
38305	R	1200	1.00	03AUG87	2.1	46	42	50672-03	
38681	R	900	0.78	04AUG87	2.1	45	32	51492-02	
38729	R	900	0.73	03AUG87	2.0	41	23	51492-37	
38901	R	2200	1.95	04AUG87	2.2	32.	29	50672-03	
40035	R	2150	1.51	04AUG87	1.9	43	29	50672-03	
40160	R	450	0.22	03AUG87	1.3	41	26	51492-37	
40350	R	2000	0.75	03AUG87	0.9	26.	22	50672-03	
41317	R	800	0.36	15JUL87	1.2	48	37	51492-02	
42095	R	1250	0.37	16JUL87	0.7	52	21	51492-02	

DISTRICT=96 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
38284	R	2200	0.74	06AUG87	1.2	48	29	51972-02	
38453	R	2630	2.35	04AUG87	2.2	43	35	51490-01	
40106	R	1700	0.59	04AUG87	0.9	49	37	51490-01	
40218	R	2700	0.96	05AUG87	0.9	43	37	51193-31	51352-02
40570	R	3000	0.90	03AUG87	0.7	46	33	51193-31	50212-04
40604	U	5400	1.45	24AUG87	0.7	39	31	52102-01	
40744	R	3600	2.29	18AUG87	0.2	43	23	51193-31	50212-04
40965	R	3750	1.47	05AUG87	0.9	42	24	51490-01	
40998	R	1150	0.31	04AUG87	0.7	47	34	51490-01	

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DISTRICT=96 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
41315	R	1650	0.59	19AUG87	0.9	48	36	51193-31	51192-02
42012	R	3000	0.80	03AUG87	0.7	44	30	50912-02	
42159	R	3450	1.06	05AUG87	0.8	43	29	52100-32	
42173	R	3000	0.93	05AUG87	0.4	38	36	51193-31	51352-02
42174	R	2500	0.95	05AUG87	0.8	44	25	51490-01	
43208	R	1500	0.15	24AUG87	0.3	46	30	51490-01	

DISTRICT=97 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
42133	R	2500	0.83	19AUG87	0.8	54	50	50912-02	
42204	R	6400	0.70	19AUG87	0.3	42	35	50912-02	
42450	R	4700	0.35	19AUG87	0.2	40	30	50912-02	

DISTRICT=97 MIXNAME=PIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
15223	R	9400	7.75	26AUG87	2.9	53	43		

DISTRICT=98 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35140	R	15500	12.75	25AUG87	2.2	57	49	51193-31	51632-03
38279	U	6400	5.25	27AUG87	2.0	36	19	51193-31	51192-02
38644	R	1575	1.31	26AUG87	2.1	45	30		
40209	R	4400	1.73	26AUG87	1.2	52	44	50912-02	
40315	R	7300	2.65	25AUG87	1.0	51	38	51193-31	51632-05
40466	R	5500	2.32	27AUG87	1.1	41	24	51193-31	51192-02
40478	R	9000	3.33	27AUG87	1.0	47	33	51193-31	51192-02

DISTRICT=99 MIXNAME=PCC PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRICT	SMOOTH TIRE AVG FRICT	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36169	R	16900	9.38	26AUG87	2.0	55	46	51631-07	
36297	R	2600	2.14	25AUG87	2.4	52	45	51632-03	
36645	R	7500	2.77	25AUG87	1.1	54	40	51132-03	
39343	R	8900	0.70	25AUG87	0.1	55	47	51630-06	

DISTRICT=99 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRICT	SMOOTH TIRE AVG FRICT	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35432	R	1550	1.45	05AUG87	1.2	39	31	52302-41	
35432	R	1550	1.45	05AUG87	1.2	39	31	52302-41	
35432	R	1550	1.45	05AUG87	1.2	39	31	52302-41	
35432	R	1550	1.45	05AUG87	1.2	39	31	52302-41	
35432	R	1550	1.45	05AUG87	1.2	39	31	52302-41	
36922	R	1200	1.24	10JUN87	2.7	43	30		
40172	R	1660	1.28	05AUG87	1.2	39	28	50032-01	51812-02

DISTRICT=99 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRICT	SMOOTH TIRE AVG FRICT	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40986	R	8000	0.65	05AUG87	0.2	51	26	50591-04	

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CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
34022	U	18600	25.92	12AUG87	5.9	29	19	50312-78	
35146	R	4650	9.58	29OCT87	4.9	37	25	51972-15	
35491	R	16000	19.78	11AUG87	4.9	26	20	50312-04	
35911	U	14300	10.49	23JUN87	2.8	26	13		
36678	R	28600	31.37	23JUN87	2.9	30	15	50950-18	
36850	U	7700	5.28	27OCT87	2.4	35	21	50312-78	
36919	U	10700	8.86	27OCT87	3.0	34	25	50312-78	
38058	R	2250	2.70	28OCT87	3.2	44	24	51972-03	
38324	U	26200	13.75	01JUL87	1.9	31	18	50312-02	
38325	R	120000	94.43	26OCT87	3.1	32	16	51972-02	
38520	R	10600	11.75	23JUN87	2.7	34	20	51972-13	
38741	U	21100	11.06	01JUL87	2.1	29	20	51193-31	51192-02
40012	R	36000	23.02	24JUN87	1.7	30	17	50312-02	

DISTRICT=91 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
31013	U	23000	92.18	22JUN87	6.9	39	20		
31013	U	23000	92.87	19JUL87	10	42			
33296	U	58900	50.39	11AUG87	7.9	46	27		
33421	U	58900	50.39	11AUG87	7.8	52	32		
34042	U	33900	41.39	12AUG87	5.0	37	24	52103-11	
34222	U	216800	135	13APR87	6.7	32	16		
34222	U	216800	145.8	26OCT87	7.2	32	14		
34634	U	27200	34.69	28OCT87	5.3	42	27	52103-11	
35811	U	14300	10.49	23JUN87	2.9	50	26		
35973	U	22300	23.92	01JUL87	2.8	41	26	52103-11	
36552	R	24000	27.79	22JUN87	3.0	47	28	52103-11	
38211	U	10600	11.03	23JUN87	2.8	33	19		
39211	U	10600	11.03	23JUN87	2.9	33	19		
38568	U	21400	6.46	12AUG87	1.1	47	28	52103-17	
40698	U	100000	20.03	14APR87	0.9	51	37	52103-10	

DISTRICT=92 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
39627	R	3400	1.95	08SEP87	2.0	47	23	51952-59	

DISTRICT=92 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
34103	R	1400	2.78	10SEP87	5.2	35	24		
35825	R	2200	2.56	09SEP87	3.0	48	33	50372-02	
35943	R	10700	17.72	08SEP87	4.0	43	25	50992-01	
36020	U	3000	3.91	08SEP87	3.9	54	53	50992-02	
36463	R	1900	2.73	08SEP87	2.9	56	51	50992-02	
36625	U	10700	11.35	09SEP87	2.9	29	17	50732-12	
36641	R	10900	10.75	14APR87	2.4	44	27	50992-01	
36641	R	10900	11.95	22JUL87	2.7	42	21	50992-01	
36641	R	10900	13.04	20OCT87	2.9	40	25	50992-01	
36704	R	1900	2.73	08SEP87	2.9	51	37	50992-01	
36724	R	10900	11.44	14APR87	2.5	46	24	50992-02	
36724	R	10900	12.69	22JUL87	2.8	45	22	50992-02	
36724	R	10900	13.92	28OCT87	3.0	44	25	50992-02	
36907	R	1000	1.04	08SEP87	2.8	57	46	51952-59	
38118	R	3700	4.26	10SEP87	2.8	42	26	50732-12	

DISTRICT=93 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
33377	U	14600	28.25	13APR87	7.7	43	22		
33377	U	14600	30.23	26OCT87	8.3	43	22		
34889	R	2200	4.27	15APR87	4.5	42	39	51052-09	
34889	R	2200	4.54	28JUL87	4.8	40	38	51052-09	
34889	R	2200	4.79	29OCT87	5.1	38	37	51052-09	

DISTRICT=93 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40735	R	2600	0.94	01JUN87	0.9	34	20	52102-01	

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DISTRICT=93 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
34676	R	4990	12.03	03JUN87	6.0	39	28	50992-03	
35530	R	10300	17.67	03JUN87	4.7	31	23	50992-03	
35721	R	450	0.63	03JUN87	2.8	63	42	50992-01	
35913	R	5300	10.19	01JUN87	4.6	42	30	52102-01	
35913	R	11600	15.70	01JUN87	3.9	50	31	50912-02	
36439	U	5400	7.53	03JUN87	3.6	44	30	50992-03	
36543	U	14400	13.32	13APR87	2.7	47	32	50912-02	
36543	U	14400	14.76	30JUL87	3.0	40	29	50912-02	
36543	U	14400	15.93	25OCT87	3.3	48	31	50912-02	
36707	R	2600	3.43	03JUN87	3.0	49	30	50992-02	
36868	U	5000	5.30	14APR87	2.6	48	32	51230-09	
36868	U	5000	6.54	28JUL87	2.9	44	29	51230-09	
36868	U	5000	7.12	29OCT87	3.2	45	29	51230-09	
36922	R	1400	1.19	03JUN87	2.0	52	41	50992-01	
36999	R	5000	5.66	13APR87	2.4	43	32	51230-09	51052-09
36999	R	5000	6.42	10AUG87	2.7	42	26	51230-09	51052-09
36999	R	5000	6.93	29OCT87	3.0	42	29	51230-09	51052-09
37953	R	850	1.00	01JUN87	4.8	51	24	50912-04	
38265	U	13200	10.99	13APR87	2.5	47	44	50912-02	
38265	U	13200	12.29	29JUL87	2.8	47	39	50912-02	
38265	U	13200	13.37	25OCT87	3.0	49	41	50912-02	
38699	U	1900	1.43	01JUN87	1.9	57	37	50912-02	
38717	R	5000	3.86	14APR87	1.7	44	32	51052-06	51230-09
38717	R	5000	4.58	10AUG87	2.1	47	33	51052-06	51230-09
38717	R	5000	5.08	29OCT87	2.3	44	31	51052-06	51230-09
40267	R	2565	0.96	01JUN87	0.7	56	33	52102-01	
40502	R	400	0.12	04JUN87	0.8	57	54	50992-02	

DISTRICT=93 MIXNAME=HOT MIX SEAL E1420

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36995	R	1400	1.54	03JUN87	2.5	53	43		

DISTRICT=94 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36777	U	20900	17.01	10AUG87	2.3	48	28	51972-02	
36777	U	20900	18.28	29OCT87	3.1	43	27	51972-02	
36777	U	20900	15.15	15APR87	2.6	45	31	51972-02	

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DISTRICT=94 MIXNAME=CLASS I F MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36777	U	20900	17.01	10AUG87	2.9	45	23	52103-08	51972-02
36777	U	20900	19.28	29OCT87	3.1	42	22	52103-08	51972-02
36777	U	20900	15.15	15APR87	2.6	46	24	52103-08	51972-02

DISTRICT=95 MIXNAME=3IT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35350	R	7200	13.43	27MAY87	4.7	50	35		
42050	R	12000	3.19	30JUN87	0.7	53	31		52100-09
42050	R	12000	4.68	04NOV87	1.1	51	31		52100-09

DISTRICT=95 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35713	U	1100	1.52	27MAY87	3.8	27	22	52100-32	
36261	R	500	0.68	27MAY87	3.6	38	28	51832-01	
36887	R	600	0.73	29MAY87	3.1	46	35	50292-02	
38032	R	1750	1.95	28MAY87	2.7	36	23	50292-02	
38216	R	4800	3.49	27MAY87	1.8	46	25	50912-02	
38267	R	2500	2.65	30JUN87	2.7	53	30	50912-02	919-01
38648	R	1800		28MAY87		41	27	51933-01	486-02
40569	R	2800	0.77	08APR87	0.7	45	40	50232-05	52100-32
40669	R	2800	1.03	29JUN87	0.9	46	31	50232-05	52100-32
40669	R	2800	1.42	04NOV87	1.3	45	30	50232-05	52100-32
41257	U	4200	3.84	30JUN87	1.7	45	31	50292-02	

DISTRICT=95 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRI	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
32411	U	8700	10.72	08APR87	4.9	30	28	52100-32	
34728	U	8700	19.61	29JUN87	5.9	25	16	50912-02	
34748	U	7200	2.45	15JUN87	1.1	36	30	52102-01	52100-32
34905	R	6900	3.75	27MAY87	4.9	43	30	50912-02	
35289	U	7600	14.27	27MAY87	5.0	37	14	51832-01	
35350	R	7200	7.74	27MAY87	3.9	54	32	51130-68	
35747	R	13600	15.57	08APR87	4.4	50	32	50912-02	
35947	U	7300	6.59	15JUN87	3.7	43	24	52100-32	52102-01

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CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36468	R	9900	10.23	08APR87	2.6	56	39	50912-02	
36468	R	9900	11.12	30JUN87	2.8	48	32	50912-02	
36468	R	9900	12.48	04NOV87	3.2	49	41	50912-02	
36531	U	9900	11.42	27MAY87	2.9	44	29	52100-32	
38014	R	2000	2.20	28MAY87	2.9	49	37	50912-02	
38257	R	1800		30JUN87	2.9	62	42	50912-02	
38282	R	13800	8.82	09APR87	1.7	44	34	52100-32	51832-01
38295	U	LR400	6.55	08APR87	1.5	32	20	50912-02	
38319	R	1800	1.34	28MAY87	2.0	45	36	52100-32	
39242	R	600	0.66	30JUN87	2.9	62	46	50912-02	
40691	U	6600	1.84	27MAY87	0.7	36	26	50912-02	
40908	U	8200	1.33	09APR87	0.6	49	48	50912-02	

DISTRICT=95 MIXNAME=HOT MIX SEAL LR424

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36936	R	2400	2.25	08APR87	2.5	46	19		
36936	R	2400	2.25	08APR87	2.5	51	24		
36936	R	2400	2.25	08APR87	2.5	56	34		
36936	R	2400	2.25	08APR87	2.5	47	14		
36936	R	2400	2.25	08APR87	2.5	53	23		
36936	R	2400	2.25	08APR87	2.5	56	34		

DISTRICT=96 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
34250	U	1000	2.22	24AUG87	5.0	37	35		
39242	R	500	0.65	20APR87	3.7	37	18	51352-01	

ILLINOIS DEPARTMENT OF TRANSPORTATION
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FOLLOWUP DATA

DISTRICT=9C MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE OF TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRICT	SMOOTH TIRE AVG FRICT	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35134	R	950	1.43	15APR87	3.8	54	36	51492-04	
35134	R	950	1.43	15APR87	3.8	47	31	51492-04	
35134	R	950	1.43	15APR87	3.8	44	25	51492-04	
35322	R	3900	7.15	19AUG87	4.9	32	25	50212-04	
35579	R	2300	3.43	27MAR87	3.8	34	21	51352-04	
35579	R	2200	3.43	27MAR87	3.8	36	25	51352-04	
35579	R	2200	3.43	27MAR87	3.8	38	31	51352-04	
35568	R	1000	1.37	15APR87	3.7	41	31	51492-04	
36118	R	900	0.88	20APR87	2.9	33	24	51192-02	
36134	U	2200	3.19	20APR87	3.9	37	21	51352-04	
36378	U	400	0.52	27MAR87	3.5	37	29	51352-04	
36378	U	400	0.52	27MAR87	3.5	42	32	51352-04	
36378	U	400	0.52	27MAR87	3.5	45	35	51352-04	
38163	R	1750	1.77	20APR87	2.5	40	33	50212-04	
39149	U	2100	3.81	20MAY87	4.8	50	21	51712-01	
39770	R	3700	1.57	18AUG87	1.0	42	27	51352-02	
40017	R	2400	1.52	20APR87	1.6	33	21	51352-02	
41123	R	1000	0.80	18AUG87	1.7	44	26	51352-02	
41181	R	500	0.33	15JUN87	1.6	48	32	51352-02	

DISTRICT=9C MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE OF TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRICT	SMOOTH TIRE AVG FRICT	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
34491	R	2100	3.37	27MAR87	4.2	45	35	51192-02	51193-31
34491	R	2100	3.62	15JUL87	4.5	46	33	51192-02	51193-31
34491	R	2100	3.83	19OCT87	4.9	42	33	51192-02	51193-31
35169	R	3000	4.63	26MAR87	3.7	42	29	51193-31	50212-04
35169	R	3000	4.63	26MAR87	3.7	45	33	51193-31	50212-04
35169	R	3000	4.63	26MAR87	3.7	47	38	51193-31	50212-04
35464	U	3300	4.72	20AUG87	5.0	26	17	51972-02	
35580	U	6275	11.04	27MAR87	4.5	42	29	51193-31	51352-04
35580	U	6275	11.77	15JUL87	4.8	36	20	51193-31	51352-04
35580	U	6275	12.42	19OCT87	5.1	35	23	51193-31	51352-04
35580	R	6300	11.65	27MAR87	4.5	39	21	51193-31	51352-04
35580	R	6500	12.43	15JUL87	4.8	34	17	51193-31	51352-04
35580	R	6500	13.10	19OCT87	5.1	38	19	51193-31	51352-04
35694	R	4450	5.92	26MAR87	3.4	42	30	51972-02	
35694	R	4450	5.92	26MAR87	3.4	45	33	51972-02	
35694	R	4450	5.92	26MAR87	3.4	47	37	51972-02	
36435	R	3000	4.45	26MAR87	3.4	52	38	50912-02	
36435	R	3000	4.45	26MAR87	3.4	46	43	50912-02	
36435	R	3000	4.45	26MAR87	3.4	51	51	50912-02	
36812	R	2800	2.37	20APR87	2.6	37	25	51193-31	51192-02
36986	R	13300	12.70	25MAR87	2.5	34	22	51491-01	50212-04
36986	R	13300	14.12	08JUL87	2.9	32	19	51491-01	50212-04

DISTRICT=96 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36986	R	13300	15.45	13OCT87	3.1	31	19	51490-01	50212-04
38693	R	12700	7.19	20APR87	1.6	34	23	51352-02	51193-31
39043	U	9800	10.19	26MAR87	4.4	45	34	51193-31	51352-04
39043	U	9800	10.97	27JUL87	4.7	40	29	51193-31	51352-04
39043	U	9800	11.47	13OCT87	5.0	42	29	51193-31	51352-04
39249	U	11500	12.13	26MAR87	4.4	33	33	51490-01	
39248	U	11500	12.91	08JUL87	4.7	38	33	51490-01	
39248	U	11500	13.05	13OCT87	4.9	32	27	51490-01	
40023	R	13700	4.07	20APR87	0.8	39	25	51193-31	51352-02
40058	U	17000	9.86	16APR87	1.6	28	19	51193-31	50212-04

DISTRICT=96 MIXNAME=CLASS I E MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35489	U	8500	9.30	26MAR87	4.4	50	32	51193-31	
35489	U	8500	10.01	27JUL87	4.7	42	21	51193-31	
35489	U	8500	10.46	13OCT87	5.0	43	24	51193-31	

DISTRICT=97 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35196	R	11100	17.57	07APR87	4.6	41	24	51193-31	50212-04
35196	R	11100	19.64	22OCT87	5.1	39	26	51193-31	50212-04
35722	R	2200	2.86	07APR87	3.4	46	38	51193-31	50212-04
35722	R	2200	3.05	06JUL87	3.6	45	36	51193-31	50212-04
35722	R	2200	3.31	22OCT87	3.9	44	37	51193-31	50212-04
36298	R II	10000	9.05	07APR87	2.7	52	40	50912-02	
36298	R	10000	9.37	06JUL87	3.0	49	38	50912-02	
36298	R	10000	10.84	21OCT87	3.3	52	41	50912-02	
36304	R	7400	7.31	07APR87	2.7	50	33	50912-02	
36304	R	7400	7.97	06JUL87	3.0	51	41	50912-02	
36304	R	7400	8.76	21OCT87	3.3	54	40	50912-02	
38344	U	7400	6.53	07APR87	2.4	45	38	50912-02	
38344	U	7400	7.19	06JUL87	2.7	45	37	50912-02	
38344	U	7400	7.97	21OCT87	3.0	46	38	50912-02	
38348	R	11800	12.06	07APR87	2.6	39	31	50212-04	51193-31
38348	R	11800	13.27	06JUL87	2.7	39	27	50212-04	51193-31
38348	R	11800	14.73	21OCT87	3.0	43	32	50212-04	51193-31

DISTRICT=97 MIXNAME=OPEN GRADED

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35853	R	7000	11.40	03NOV87	4.3	54	46	51193-31	

DISTRICT=97 MIXNAME=PCC PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
40442	R	10200	1.60	07APR87	0.3	61	52	77000-92	
40442	R	10200	2.74	03AUG87	0.8	56	49	77000-92	
40442	R	10200	3.50	21OCT87	1.0	57	50	77000-92	

DISTRICT=98 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
28097	R	3750	22.99	05MAY87	15	43	19		
28097	R	3750	22.99	05MAY87	15	41	20		
28097	R	3750	22.99	05MAY87	16	49	34	119-331	
28097	R	3750	22.99	05MAY87	16	47	37	119-331	163-209
28097	R	3750	22.99	05MAY87	15	28	20	163-209	163-209
33930	U	6400	13.46	25AUG87	7.1	29	13		

DISTRICT=98 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
28097	R	3750	22.99	05MAY87	15	32	28	51632-09	51193-31
36430	R	1300	1.52	27AUG87	1.0	41	30	51192-03	

DISTRICT=98 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
28097	R	3750	22.99	05MAY87	15	41	37	51193-31	51632-09
32737	R	2600	3.91	27AUG87	0.1	41	32		
35685	R	12200	18.06	07APR87	3.6	42	29	51193-31	50212-04
35695	R	12200	20.75	20OCT87	4.1	41	30	51193-31	50212-04

ILLINOIS DEPARTMENT OF TRANSPORTATION
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1987 FRICTION DATA
FOLLOWUP DATA

DISTRICT=99 MIXNAME=CLASS I E MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
28097	R			05MAY87	16	52	30		
28097	R	3750	22.50	05MAY87	16	44	29	S1193-21	

DISTRICT=99 MIXNAME=BIT PAVEMENT

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35432	R	2700	1.90	06APR87	1.6	51	45		
35432	R	2700	2.29	05AUG87	1.9	50	40		
35432	R	2700	2.54	20OCT87	2.1	56	47		
39581	R	500	0.39	10JUN87	2.1	46	33	S0872-03	S0872-03

DISTRICT=99 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35254	R	1550	2.06	10JUN87	2.7	44	34	S0032-01	S0692-09
35803	R	1550	1.95	10JUN87	2.6	42	25	S0692-07	
36549	R	1550		10JUN87		47	37		
36549	R	1550	2.10	10JUN87	2.8	49	44	S0692-09	
36785	R	1600	2.34	10JUN87	2.9	48	38	S0692-09	
36975	U	6200	6.37	07APR87	2.7	39	18		
36975	U	6200	6.66	05JUL87	2.9	36	15		
40780	U	6200	2.65	09JUN87	0.9	41	27	S0692-04	S1812-02
40780	R	3150	1.02	04JUN87	0.8	36	19	S0692-04	S1812-02

DISTRICT=99 MIXNAME=CLASS I D MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FRT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
32542	U	10000	12.33	04AUG87	3.2	36	16	S1532-08	
35432	R	4200	2.90	06APR87	1.6	42	34	S0032-01	S0872-02
35432	R	4200	3.50	05AUG87	1.9	47	23	S0032-01	S0872-02
35432	R	4200	3.88	20OCT87	2.1	44	30	S0032-01	S0872-02
35432	R	4200	2.30	06APR87	1.6	44	41	S0032-01	S0872-02
35432	R	4200	2.88	05AUG87	1.9	47	39	S0032-01	S0872-02
35432	R	4200	2.31	21OCT87	2.1	45	41	S0032-01	S0872-02
35434	U	13350	16.60	05AUG87	3.2	32	18	S0032-01	S0692-09
35591	R	4700	7.27	06APR87	3.0	35	19		
35591	R	4700	8.61	05AUG87	4.2	37	17		

DISTRICT=99 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
35591	R	4700	8.41	20OCT87	4.4	39	21		
35591	R	4700	7.37	06APR87	3.9	39	22		
35591	R	4700	8.01	05AUG87	4.2	39	19		
35591	R	4700	8.41	20OCT87	4.4	38	23		
35767	R	2450	2.65	09JUN87	2.9	41	24	51812-02	50032-01
36042	R	5400	7.29	04AUG87	3.1	49	25	50032-01	50972-02
36117	R	11600	9.37	09JUN87	2.0	36	29	52302-38	
36284	U	2700	4.34	09JUN87	1.4	47	38	51812-02	50032-01
36302	R	1000	13.13	09JUN87	3.1	33	18	52302-38	
36451	U	7700	5.55	10JUN87	3.0	34	22	52302-38	
36709	R	5300	3.62	09JUN87	1.9	37	25	50032-01	51812-02
36764	R	4500	5.31	04AUG87	3.1	42	26	50032-01	51532-08
36815	U	18600	20.31	09JUN87	3.9	35	23	51812-02	50032-01
36867	R	2100	2.31	09JUN87	2.8	41	33	51812-02	50032-01
36874	R	1900	2.11	06APR87	2.7	61	51	51072-05	
36874	R	1900	2.37	05AUG87	3.1	63	46	51072-05	
36874	R	1900	2.53	20OCT87	3.2	62	54	51072-05	
37723	U	3500	2.75	09JUN87	2.5	39	30	50032-01	51812-02
40228	U	2650	2.08	04AUG87	1.7	32	18	50972-02	

DISTRICT=99 MIXNAME=CLASS I C MIX

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
36451	U	7700	5.55	10JUN87	3.0	35	18	51193-31	52302-38
36464	U	16900	3.35	09JUN87	2.7	32	18	50032-01	51193-31
40191	U	20600	3.42	06APR87	0.7	43	34	50692-04	
40419	R	12300	5.03	06APR87	1.1	47	42	50592-04	
40986	R	8000	1.30	21OCT87	0.4	49	29	50692-04	

DISTRICT=99 MIXNAME=HOT MIX SEAL LR424

CONTRACT	RURAL URBAN	AVERAGE DAILY TRAFFIC	AXLE PASSES X 1M	DATE FN TEST	PAVEMENT AGE YEARS	TREADED TIRE AVG FNT	SMOOTH TIRE AVG FNS	COARSE AGGREGATE PROD/SUPP	COARSE AGGREGATE PROD/SUPP
32542	U	10000	12.33	04AUG87	3.2	29	22	51532-08	50032-01
39194	U	1350	1.65	10JUN87	2.1	33	13		

APPENDIX 3

CONTRACTS WITH TRA-16 COUNTERMEASURES

ACCIDENT HISTORIES - TRA - 16 SITES
TWO YEARS BEFORE ACCIDENT DATA

LETTING DATE	ITEM #	DATE AWARDED	COUNTY	PROJECT LIMITS	A.D.T.	TOTAL ACCIDENTS	WET PAVEMENT ACCIDENTS	DRY PAVEMENT ACCIDENTS
05-Feb-87	2	13-Mar-87	Franklin	On Ill. Route 154 between Ill. Route 148 in Sesser and Rend Lake (3.46 miles)	3,100	19	4	15
	4	23-Feb-87	Jackson	On Ill. Route 13 between Polar Street and Lewis Lane in Carbondale (1.05 miles)	25,200	206	34	165
	11	23-Feb-87	Tazewell	On Ill. Route 29 between Wesley Road and Rusche - Highway Avenue in Creve Coeur (1.08 miles)	21,100	36	5	21
	45	23-Feb-87	Boone	On Ill. Route 76 between Business US Route 20 and US Route 20 in Belvidere (.86 mile)	6,850	53	12	28
	52	23-Feb-87	Rock Island	On Coaltown Road from FAI Route 74 East to Blackhawk college in Moline (2.12 miles)	23,500	57	18	27
03-Apr-87	12	22-Apr-87	Jackson	On Ill. Route 149 between 6th Street and 22nd Street in Murphysboro (1.05 miles)	13,100	164	40	117
	13	22-Apr-87	Lake	At the Intersection of Ill. Route 83 and Rollins Road	22,800	69	29	37
	16	11-May-87	Macon	Concrete pavement on West Main Street, from Wyckles Road East to Victoria Avenue in Decatur (1.78 miles)	3,300	11	0	8
	93	22-Apr-87	Kendall	On US Route 34 from West of Cannonball Trail to West of Ill. Route 47 (.97 mile)	8,900	58	18	32
	99	22-Apr-87	Rock Island	FA Route 10 Spur on Andalusia Road at Ridgewood Road in Milan (.36 mile)	12,800	9	1	2
	158	22-Apr-87	Cook	FAU Route 2831 on Kedzie Avenue between 103rd Street and 87th Street in Evergreen Park (2.06 miles)	22,800	220	91	102
	168	22-Apr-87	Marion	On US Route 51 from Ellis Street in Central City South to Calumet Street in Centralia (2.43 miles)	5,800	165	40	110
15-May-87	2	09-Jun-87	Alexander	At the Intersection of US Route 51, 60 and 62 in Cairo	5,900	15	2	13
	17	08-Jun-87	LaSalle	On Ill. Route 71, between Covel Creek, Southwest of Ottawa and Ill. Route 23 in Ottawa (2.26 miles)	3,000	19	6	12

ACCIDENT HISTORIES - TRA - 16 SITES
TWO YEARS BEFORE ACCIDENT DATA

LETTING DATE	ITEM #	DATE AWARDED	COUNTY	PROJECT LIMITS	A.D.T.	TOTAL ACCIDENTS	WET PAVEMENT ACCIDENTS	DRY PAVEMENT ACCIDENTS
15-May-87	18	05-Jun-87	Lawrence	On US Route 50 from .18 mile east to 4.23 miles east of Ill. Route 1 north and east of Lawrenceville (3.74 miles)	3,600	13	1	11
	27	09-Jun-87	Winnebago	On northbound Ill. Route 251 between State Street and Lafayette Street in Rockford (.23 mile)	16,800	97	14	75
	60	09-Jun-87	Cook	On Ill. Route 58 (Demptster) from Lincoln Avenue east to Parkside Avenue in Morton Grove (1.00 mile)	32,900	443	144	255
	61	11-Jun-87	Cook	At the Intersection of Ill. Route 62 and Lexington Drive in South Barrington	22,200	1	0	0
	70	09-Jun-87	Kendall	On Ill. Route 47 at 2 Intersections-Galena Road 2.5 miles north of Yorkville and at Ill. Route 126 in Yorkville (.40 mile)	9,900	18	10	7
	79	08-Jun-87	Warren	At the Intersection of US Route 34 and US Route 67 in Monmouth	4,200	22	11	11
	163	08-Jun-87	Winnebago	On Ill. Route 251 from north of Glendale Road south to near Cottage Avenue in Loves Park (1.89 miles)	26,500	168	29	119
	183	09-Jun-87	Madison	On Ill. Route 159 between Pine Lake Road and Dana Drive in Collinsville (.43 mile)	13,300	120	23	96
22-June-87	86	22-Jul-87	Iroquois	On FAI Route 57 south of the Ill. Route 54 interchange, south of Onarga (4.03 miles)	10,500	24	2	20
	90	30-Jul-87	Lake	On Ill. Route 60 between Ill. Route 21 and the Tri-State Tollway in Mettawa (1.81 miles)	18,000	147	38	97
	101	09-Jun-87	Perry	On US Route 51 at the intersection of Ill. Route 152 in DuQuoin (.18 mile)	14,700	5	3	2
	173	12-Aug-87	Adam	On Ill. Route 104, from approximately 3.8 miles east of Ill. Route 336 east 1.8 miles east Quincy (1.85 miles)	4,500	19	7	9
	178	21-Jul-87	Lake	On Ill. Route 60 over Tri-State Tollway and bridge carrying Ill. Route 60 over the North Branch of Chicago River, all between Bradley-Riverwoods Road in Mettawa and US	12,250	5	2	2

ACCIDENT HISTORIES - TRA - 16 SITES
TWO YEARS BEFORE ACCIDENT DATA

LETTING DATE	ITEM #	DATE AWARDED	COUNTY	PROJECT LIMITS	A.D.T.	TOTAL ACCIDENTS	WET PAVEMENT ACCIDENTS	DRY PAVEMENT ACCIDENTS
31-Jul-87	1	14-Aug-87	Boone	On US Business Route 20 from Shaw Road east to Belvidere (3.04 miles)	3,900	35	6	19
	9	07-Aug-87	Lee	At the intersection of US Route 30 and Ill. Route 251, all north of Compton	2,400	7	2	3
	31	12-Aug-87	Lee - LaSalle	Ill. Route 251 between West Brookly and and Mendota (8.46 miles)	2,500	2	1	1
28-Aug-87	1	14-Aug-87	Champaign	On US Route 150, between Springfield Avenue and FAI Route 74, in Champaign (1.36 miles)	5,000	0	0	0
	9	07-Aug-87	Lee	On NB Ill. Route 26 (Galena Avenue) at the intersection with Boyd Street in Dixon	13,700	12	3	6
	12	14-Oct-87	Will	At the intersection of US Route 52 and Ill. Route 7 in Joliet	51,000	102	36	56
	67	09-Sep-87	Madison	On Ill. Route 159 at the intersection with Glen Crossing Road in Glen Carbon (.22 mile)	1,900	9	3	6
	69	09-Sep-87	St. Clair	On Ill. Route 15 from the entrance to Our Lady of the Snows Shrine to Ill. Route 13 west of Belleville (.76 mile)	12,700	38	26	9
	74	10-Sep-87	Stephenson	On Ill. Route 26 over Yellow Creek in Freeport	16,700	0	0	0

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ACCIDENT HISTORIES - TRA - 16 SITES
TWO YEARS BEFORE ACCIDENT DATA

LETTING DATE	ITEM #	DATE AWARDED	COUNTY	PROJECT LIMITS	A.D.T.	TOTAL ACCIDENTS	WET PAVEMENT ACCIDENTS	DRY PAVEMENT ACCIDENTS
05-Feb-87	2	13-Mar-87	Franklin	On Ill. Route 154 between Ill. Route 148 in Sesser and Rend Lake (3.46 miles)	3,100	19	4	15
	4	23-Feb-87	Jackson	On Ill. Route 13 between Polar Street and Lewis Lane in Carbondale (1.05 miles)	25,200	206	34	165
	11	23-Feb-87	Tazewell	On Ill. Route 29 between Wesley Road and Rusche - Highway Avenue in Creve Coeur (1.08 miles)	21,100	36	5	21
	45	23-Feb-87	Boone	On Ill. Route 76 between Business US Route 20 and US Route 20 in Belvidere (.86 mile)	6,850	53	12	28
	52	23-Feb-87	Rock Island	On Coaltown Road from FAI Route 74 East to Blackhawk college in Moline (2.12 miles)	23,500	57	18	27
03-Apr-87	12	22-Apr-87	Jackson	On Ill. Route 149 between 6th Street and 22nd Street in Murphysboro (1.05 miles)	13,100	164	40	117
	13	22-Apr-87	Lake	At the Intersection of Ill. Route 83 and Rollins Road	22,800	69	29	37
	93	22-Apr-87	Kendall	On US Route 34 from West of Cannonball Trail to West of Ill. Route 47 (.97 mile)	8,900	58	18	32
	158	22-Apr-87	Cook	FAU Route 2831 on Kedzie Avenue between 103rd Street and 87th Street in Evergreen Park (2.06 miles)	22,800	220	91	102
	168	22-Apr-87	Marion	On US Route 51 from Ellis Street in Central City South to Calumet Street in Centralia (2.43 miles)	5,800	165	40	110
15-May-87	17	08-Jun-87	LaSalle	On Ill. Route 71, between Covel Creek, Southwest of Ottawa and Ill. Route 23 in Ottawa (2.26 miles)	3,000	19	6	12
	27	09-Jun-87	Winnebago	On northbound Ill. Route 251 between State Street and Lafayette Street in Rockford (.23 mile)	16,800	97	14	75
	60	09-Jun-87	Cook	On Ill. Route 58 (Demptster) from Lincoln Avenue east to Parkside Avenue in Morton Grove (1.00 mile)	32,900	443	144	255

ACCIDENT HISTORIES - TRA - 16 SITES
TWO YEARS BEFORE ACCIDENT DATA

LETTING DATE	ITEM #	DATE AWARDED	COUNTY	PROJECT LIMITS	A.D.T.	TOTAL ACCIDENTS	WET PAVEMENT ACCIDENTS	DRY PAVEMENT ACCIDENTS
15-May-87	163	08-Jun-87	Winnebago	On Ill. Route 251 from north of Glendale Road south to near Cottage Avenue in Loves Park (1.89 miles)	26,500	168	29	119
26-June-87	90	30-Jul-87	Lake	On Ill. Route 60 between Ill. Route 21 and the Tri-State Tollway in Mettawa (1.81 miles)	18,000	147	38	97
	101	09-Jun-87	Perry	On US Route 51 at the intersection of Ill. Route 152 in DuQuoin (.18 mile)	14,700	5	3	2
	173	12-Aug-87	Adam	On Ill. Route 104, from approximately 3.8 miles east of Ill. Route 336 east 1.8 miles east Quincy (1.85 miles)	4,500	19	7	9
	178	21-Jul-87	Lake	On Ill. Route 60 over Tri-State Tollway and bridge carrying Ill. Route 60 over the North Branch of Chicago River, all between Bradley-Riverwoods Road in mettawa and US Route 41 in Lake Forest	12,250	5	2	2
31-Jul-87	1	14-Aug-87	Boone	On US Business Route 20 from Shaw Road east to Belvidere (3.04 miles)	3,900	35	6	19
	9	07-Aug-87	Lee	At the intersection of US Route 30 and Ill. Route 251, all north of Compton	2,400	7	2	3
28-Aug-87	9	07-Aug-87	Lee	On NB Ill. Route 26 (Galena Avenue) at the intersection with Boyd Street in Dixon	13,700	12	3	6
	69	09-Sep-87	St. Clair	On Ill. Route 15 from the entrance to Our Lady of the Snows Shrine to Ill. Route 13 west of Belleville (.76 mile)	12,700	38	26	9

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